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A New Species of *Oxyphyllomyia* (Diptera, Tachinidae) from
Nepal, with Reference to the Phylogenetic Position
of the Genus*

With 9 Text-figures

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ABSTRACT A new species of *Oxyphyllomyia* VILLENEUVE, *O. alticola*, is described and illustrated from Nepal. This is the second species of this peculiar genus. On the basis of the morphological structure of the male and female genitalia, it is inferred that *Oxyphyllomyia* is most closely allied to *Solieria* and is included in the tribe Leskiini (sensu CROSSKEY, 1976).

The monotypic genus *Oxyphyllomyia* was erected by VILLENEUVE (1937) for an aberrant species, *O. cordylurina*, from Szechwan, China. This species is known only from 3 female specimens and is peculiar in having a very weak postscutellum, exceptionally small lower calypter, elongate proboscis, wing vein *Cu+1* extending to wing margin, only 1 hypopleural seta and a rather cylindrical and elongate body.

In recent years I have had the opportunity to examine several specimens of a species of *Oxyphyllomyia* collected in eastern Nepal. The Nepalese species differs from *O. cordylurina* in some remarkable characters, such as length of the proboscis and size of the lower calypter. It is described below as new to science.

The phylogenetic position of the genus *Oxyphyllomyia* has not yet been established. On the basis of superficial resemblance, VILLENEUVE (1937) considered it close to the genus *Phyllomya* ROBINEAU-DESVOIDY; MESNIL (1975) treated it as close to *Doleschalla* WALKER, while CROSSKEY (1976) placed the tribe *Oxyphyllomyiini* comprising *Oxyphyllomyia* only next to the tribe Leskiini.

CROSSKEY (1976) selected a lectotype for *Oxyphyllomyia cordylurina* from among the three female syntypes. I have examined the female genitalia of a paralectotype of *O. cordylurina*, and the male and female genitalia of the new species, and compared these with genitalia of other tachinids. I have concluded that the genus is most closely allied to *Solieria* ROBINEAU-DESVOIDY, a member of the tribe Leskiini

* Results of Kyushu University Scientific Expedition to the Nepal Himalaya. Diptera 2.

(sensu CROSSKEY, 1976), on the basis of these examinations.

Holotype of the new species described below will be deposited in the collection of the Biological Laboratory, College of General Education, Kyushu University, Fukuoka (BLKU). Paratypes will be kept in BLKU, British Museum (Natural History), London, Entomological Laboratory, Osaka Prefectural University, Sakai, and U.S. National Museum of Natural History, Washington, D.C. (USNM).

DESCRIPTIONS

Oxyphyllomyia VILLENEUVE

Oxyphyllomyia VILLENEUVE, 1937, Bull. Mus. roy. Hist. nat. Belg., 13(34): 11. Type-species: *O. cordylurina* VILLENEUVE, 1937, by monotypy.

MESNIL (1966) proposed the subtribe Oxyphyllomyiina for the genus *Oxyphyllomyia* and later (1975) summarized some of the characters of the genus. CROSSKEY (1976) treated the group as a tribe of the subfamily Tachininae and described it more extensively. The generic characters are described below on the basis of my examinations of two species.

♂♀. *Head*:—Subquadrate in profile; vertex wide, more than $2/5$ of head width; face weakly concave, without facial carina; epistoma weakly warped forwards, slightly projecting beyond base of vibrissa; gena wide, $2/5$ – $1/2$ of eye-height; occiput strongly bulged. Eye bare. Inner vertical seta strong; outer vertical seta absent; ocellar seta rather weak, proclinate; 1 outwardly directed prevertical seta; proclinate orbital seta present or absent; frontal setae sparse; facial ridge bare; vibrissa nearly level with lower margin of face; postocular row strong and sparse; upper parafacial with several hairs; occiput with black setulae on upper portion and with yellowish white pile on lower portion. Base of antenna well above the level of middle of eye; 1st segment prominent; 3rd segment more than twice as long as 2nd. Arista with basal 2 segments short; 3rd segment at most with very short pubescence, thickened on basal portion. Rostrum long and slender, more than $1.5\times$ as long as head height; labella small and slightly elongate; palpus long and weakly clavate. *Thorax*:—Hairs on thorax fine, sparse and black; propleuron and prosternum bare; intra-squamal area sometimes with several very fine short hairs; *ac* absent; $2+3$ *dc*; 2 humerals; 1 post-humeral; 1 presutural; $0+1$ *ia*; pre-alar absent; 1 supra-alar; 1 strong and 1 fine propleural setae; 1 rather fine prostigmatic seta; pteropleural seta very strong; $1+1$ *stpl* setae; hypopleural seta very fine; scutellum with only 2 strong divergent subapical scutellar setae. Postscutellum only weakly developed; mediotergite elongate below postscutellum; posteroventral declivity of thorax membranous medially. *Wing*:—Long and narrow; costa setulose above and below; costigial setae short; costal spine indistinct; basal node of vein R_{4+5} at most with a few very fine hairs; cell R_{4+5} open; last section of vein M_3 less than $1/2$ length of *r-m* crossvein; vein $Cu+A$ usually

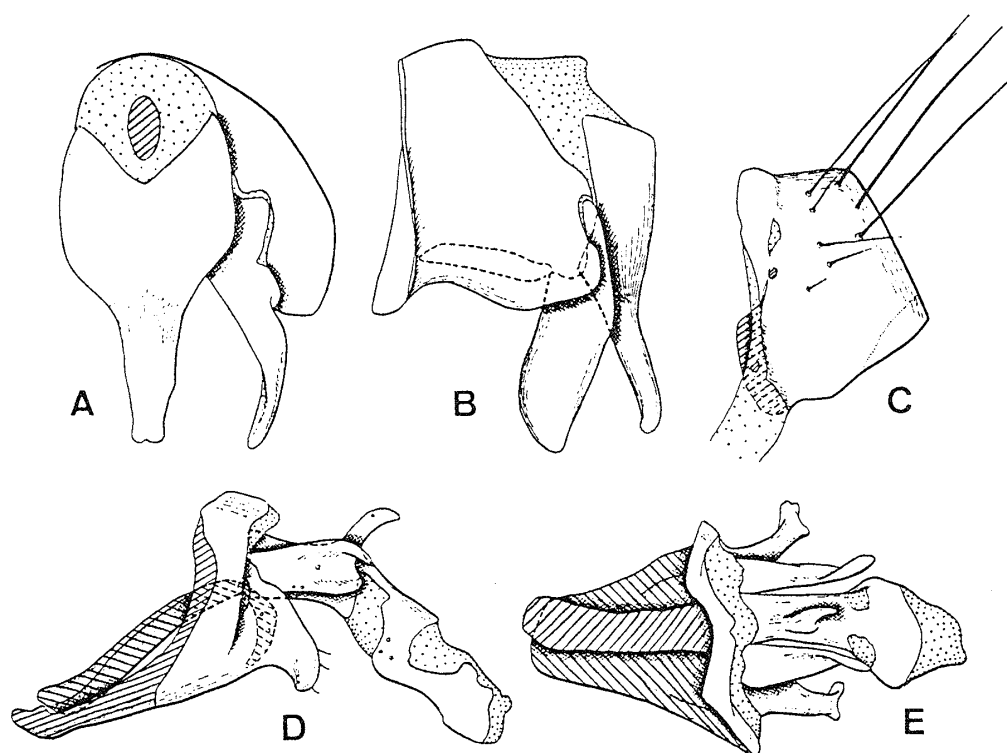


Fig. 1. Male genitalia of *Oxyphyllomyia alticola* sp. n. — A, Epandrium cerci and surstylus in dorsal view; B, same in lateral view; C, 6th tergum and synsternum 7+8 in lateral view; D, hypandrium, pre- and postgonites and aedeagus in lateral view; E, same in dorsal view. Hairs omitted in A & B.

reaching wing margin; calypter small, apical margin of lower calypter not extending beyond the middle of alula. *Legs*:— Long and slender; fore coxa elongate, with sparse hairs on outer ventral portion; hind coxa bare posterodorsally; fore tibia with 2 *ad* and 2 *p* setae; mid-tibia with usually 2 *ad*, 2 *pd* and a *v* setae; hind tibia with 2 preapical *d* setae and a weak apical *pv* seta; claws and pulvilli short. *Abdomen*:— Long and narrow; syntergum 1+2 excavated only at base dorsally; median marginal setae strong and erect on 2nd to 5th terga; median discal setae at most weakly developed on intermediate terga; 2nd and 3rd sterna exposed; 4th sternum concealed; 3rd and 4th sterna each with a pair of long and strong setae on posterior portion.

Oxyphyllomyia alticola sp. nov.

(Figs. 1; 2 A, B)

♂. *Head*. Parafrontal and occiput grayish white, somewhat bluish, pollinose; parafacial, face and gena whitish pollinose; interfrontal area brown-black, sometimes anterior 1/3–1/2 reddish; antenna brown-black, 1st and 2nd segments weakly

tinged with reddish brown; palpus yellow, apical portion brown; rostrum brown. Vertex 0.47–0.52 of head width; frons slightly shorter than face in profile (10:11); interfrontal area parallel-sided, about $2\times$ as wide as parafrontal at middle; para-facial narrowed below, about $5/8$ as wide as 3rd antennal segment at middle-height; gena 0.47–0.53 of eye-height; ventromedian portion of head compressed laterally; mouth opening about $3.5\times$ as long as wide. Parafrontal sparsely haired; upper $1/3$ of parafacial with sparse and fine hairs; inner vertical seta subequal in length to eye-height; prevertical seta about $3/5$ as long as inner vertical seta; ocellar seta rather fine, about $1/3$ as long as inner vertical seta; 3–6 rather short and fine frontal setae, lowest seta nearly level with middle of 2nd antennal segment; no proclinate and reclinate orbital seta; vibrissae apically separated from each other, rather short, about $1/3$ as long as inner vertical seta; lower portion of gena with 1–3 irregular rows of very fine black hairs. Antenna with apex almost reaching lower margin of face; 3rd segment about $5\times$ as long as 2nd, about $4\times$ as long as wide. Arista about $1.2\times$ as long as 2nd and 3rd antennal segments combined; 3rd segment thickened on basal $1/3$. Palpus only slightly clavate at apex, subequal in length to 2nd and 3rd antennal segments combined. Rostrum about $3\times$ as long as head height.

Thorax. Entirely black in ground color, densely bluish gray pollinose; when viewed from behind 3 broad longitudinal vittae present on prescutum and scutum, middle one stopped at anterior $1/3$ of scutum and outer ones at $1/2$. Scutellum short and triangular in form, about $1/2$ as long as scutum. Subapical scutellar seta slightly longer than $4\times$ scutellum.

Wing. Hyaline, slightly and evenly tinged with brown; tegula and basicosta reddish yellow; veins pale brown; calypter dull yellowish white; halter yellowish white. Second costal sector slightly shorter than $1/2$ of 3rd sector; vein M_1 from discal crossvein to bend about $2/3$ as long as that from bend to apex, and about $2.5\times$ as long as distance between the bend and wing margin; last section of vein M_3 about $1/3$ as long as discal crossvein. Lower calypter about $2\times$ as long as upper one, reaching the middle of alula.

Legs. Yellow, except for brownish tarsi; pulvilli dull yellowish white.

Abdomen. Black in ground color, densely tessellate bluish gray pollinose. A row of 4–6 strong median marginal setae present on 3rd to 5th terga; strong lateral discal setae on syntergum 1+2; hairs strong and erect on discal portion of each tergum; 5th tergum with a row of 4 strong discal setae.

♂ *Genitalia.* 5th sternum short and broad, posteromedian margin rather narrowly excavated; 6th tergum closely associated with synsternum 7+8, partly fused with the latter; 6th abdominal spiracle situated on membrane in front of 6th tergum; cerci completely fused; surstylus weakly narrowed to apex, apex slightly extending beyond cercal apex; dorsal arms of hypandrium fused medially with each other; pregonite short, with several fine hairs; basiphallus with narrow epiphallus; distiphallus rather short; ejaculatory apodeme large.

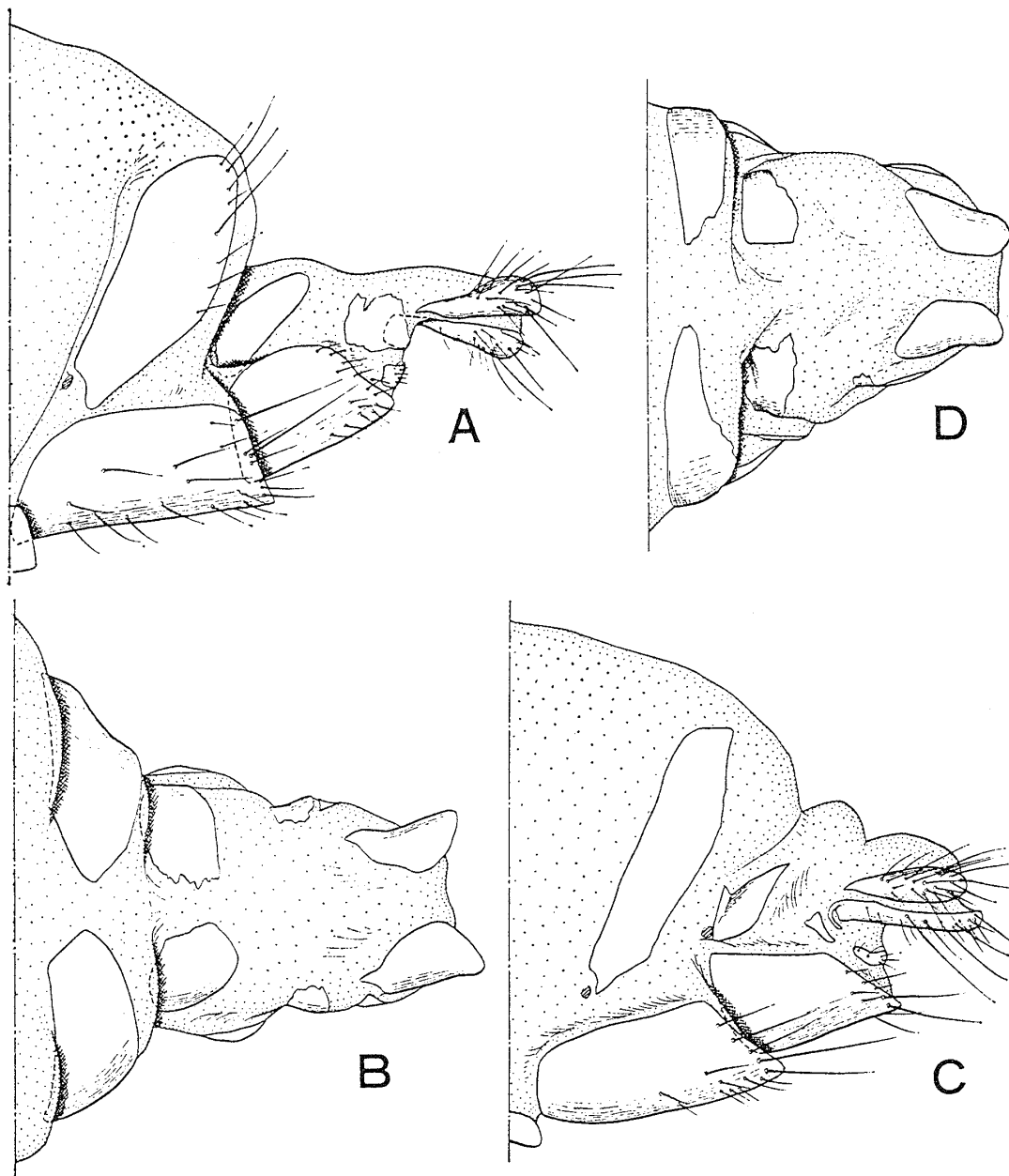


Fig. 2. Female genitalia of *Oxyphyllomyia alticola* sp. n. (A, B) and *O. cordylurina* VILLENEUVE (C, D). — A, C, Lateral view; B, D, dorsal view (hairs omitted).

♀. Very closely resembling male, but differing as follows.

Parafacial subequal in width to 3rd antennal segment at middle-height; 3rd antennal segment about $3.5\times$ as long as 2nd and $4\times$ as long as wide; palpus $1.2\times$ as long as 2nd and 3rd antennal segments combined; rostrum $2.2\text{--}2.5\times$ as long as head-height. ♀ *Genitalia*. 6th tergum rather long, divided into 2 hemitergites at middle, with a row of rather strong hairs on posterior portion; 6th sternum long;

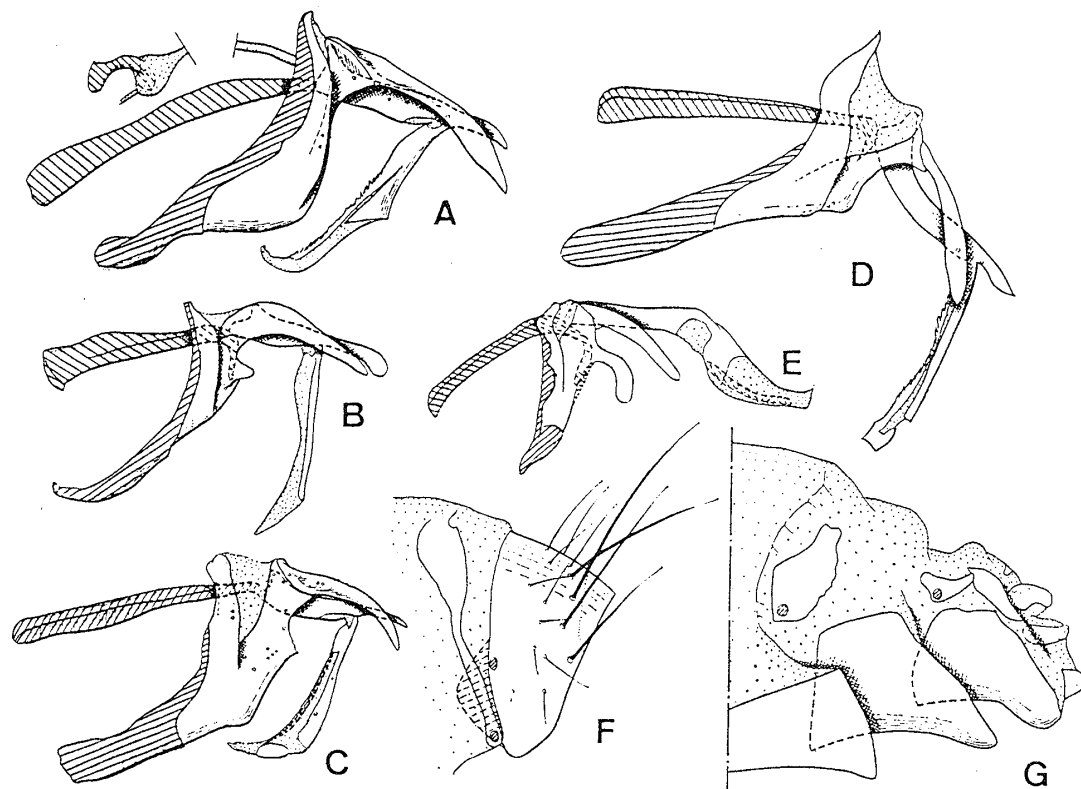


Fig. 3. Male (A-F) and female (G) genitalia. — A, *Phyllomyia takanoi* MESNIL; B, *Dole-schalla* sp. from Luzon; C, *Dexiomimops rufipes* BARANOV; D, *Feriola* sp. from Taiwan; E-G, *Trichoformosomyia sauteri* BARANOV. — A-E, Hypandrium, pre- and postgonites and aedeagus in lateral view; F, 6th tergum and synsternum 7+8 in lateral view; G, female genitalia in lateral view.

6th abdominal spiracle situated in membrane of anteroventral portion of 6th tergum; 7th tergum rather broadly divided into 2 hemitergites, without hair; 7th sternum 3/4 as long as 6th sternum; 7th spiracle in membrane of anteroventral portion of 7th tergum; 8th tergum of very small hemitergites, without hair; 8th sternum very short, at most 1/4 as long as 7th sternum, with minute hairs; epiproct absent.

Body length: 4.0–7.0 mm; wing length: 4.4–6.9 mm.

Distribution. Nepal.

Holotype ♂, Thudam (3,500 m), 27°45'N 87°32'E, E. Nepal, 1–4. vii. 1972, Malaise trap (BLKU).

Paratypes: 2 ♂♂ 1 ♀, Zomni (3,100 m), Taplejung, E. Nepal, 3. vii. 1962, T. YASUDA; 1 ♂, Walungchung Gola (3,350 m), Taplejung, 18. vi. 1962, T. YASUDA; 3 ♂♂, NE of Thudam (4,000 m), 27°47'N 87°36'E, E. Nepal, 25. vi. 1972, H. SHIMA; 28 ♂♂, same locality as holotype, 21–30. vi. 1972, Malaise trap; 9 ♂♂, same data as holotype; 7 ♂♂, same locality as holotype, 8–9. vii. 1972, Malaise trap; 1 ♂, same as preceding, 22. vii. 1972, J. EMOTO; 1 ♂, same as preceding, 27. vi. 1972, J.

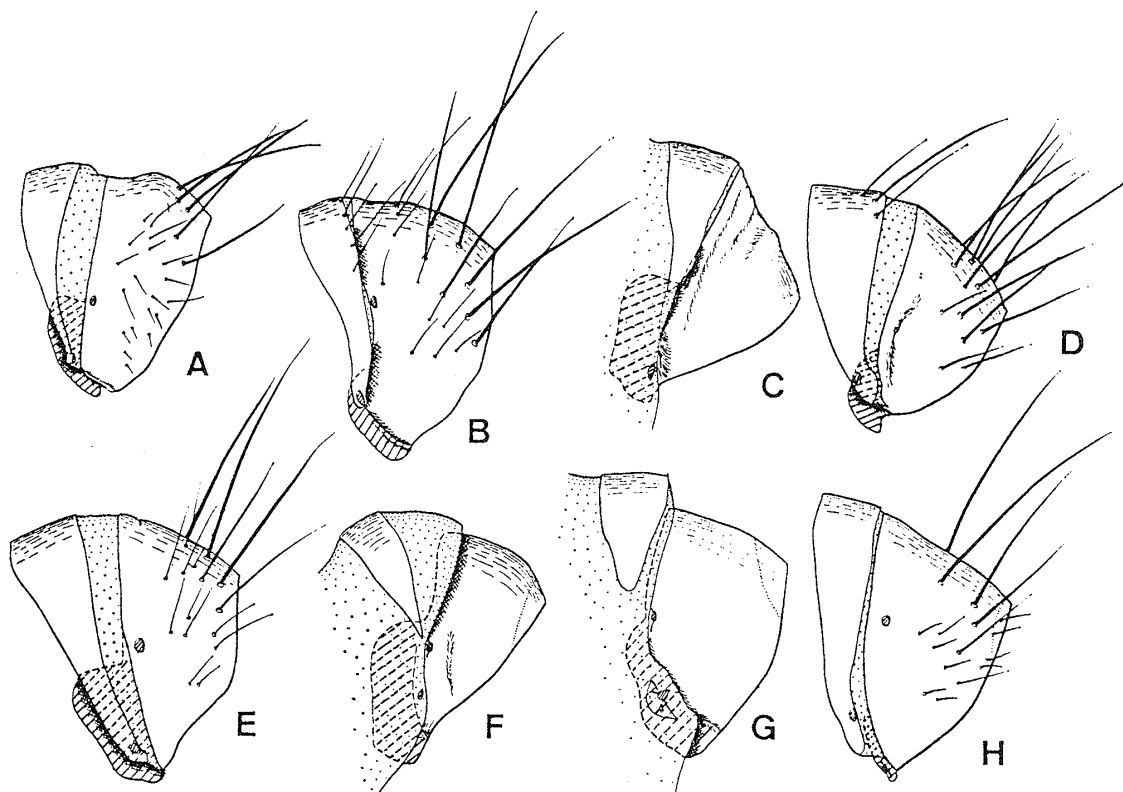


Fig. 4. Male 6th abdominal tergum and synsternum 7+8 in lateral view. — A, *Aphria longilingua* (RONDANI); B, *Atylostoma similimum* (TOWNSEND); C, *Clausicella* sp. from Laos; D, *Demoticoidea pallidus* MESNIL; E, *Demoticus plebejus* (FALLÉN); F, *Istoglossa* sp. from Laos; G, *Ocypteromima polita* TOWNSEND; H, *Thelairoleskia* sp. (*bicolor*?) from Celebes. Hairs omitted in C, F & G.

EMOTO; 1 ♂, Topke Gola (3,700 m), 8. vii. 1972, J. EMOTO; 1 ♀, Salpa La (3,000–3,050 m), E. Nepal, 29. vii. 1981, J. EMOTO.

Oxyphyllomyia cordylurina VILLENEUVE

(Fig. 2 C, D)

Oxyphyllomyia cordylurina VILLENEUVE, 1937, Bull. Mus. roy. Hist. nat. Belg., 13 (34): 12.

The main differences between this and the preceding species are as follows: ♀. 1st and 2nd antennal segments reddish yellow, 3rd segment about 4× as long as 2nd and 3.5× as long as wide; 1 proclinate orbital seta present on middle of parafrontal in profile, subequal in length to prevertical seta; vibrissa stronger, about 3/5 as long as inner vertical seta; palpus subequal in length to 2nd and 3rd antennal segments combined; rostrum at most 1.7× as long as head-height; postalar callus and apical portion of scutellum reddish brown in ground color; 2nd costal sector of wing about 2/7 as long as 3rd; lower calypter very small, not longer than upper

one, at most reaching anterior 1/4 of alula. ♀ *Genitalia*: Resembling those of *O. alticola*, but differing as follows: 6th tergum without hair; 8th tergum very small, weakly sclerotized; 8th sternum narrowly divided into 2 hemitergites at mid-ventral portion.

Distribution. China (Szechwan).

Specimen examined. 1 ♀ paralectotype, Mt. Omei, Szechuen (Szechwan), China, D. C. GRAHAM (USNM).

PHYLOGENETIC POSITION OF THE GENUS *Oxyphyllomyia*

In the original description of *Oxyphyllomyia*, VILLENEUVE (1937) mentioned that this genus is close to *Phyllomya* ROBINEAU-DESVOIDY but different from it in some remarkable characters, such as length of proboscis, development of scutellum, postscutellum and calypter, and thoracic chaetotaxy. MESNIL (1966) proposed the subtribe *Oxyphyllomyiina* for *Oxyphyllomyia*, and he (1975) suggested that

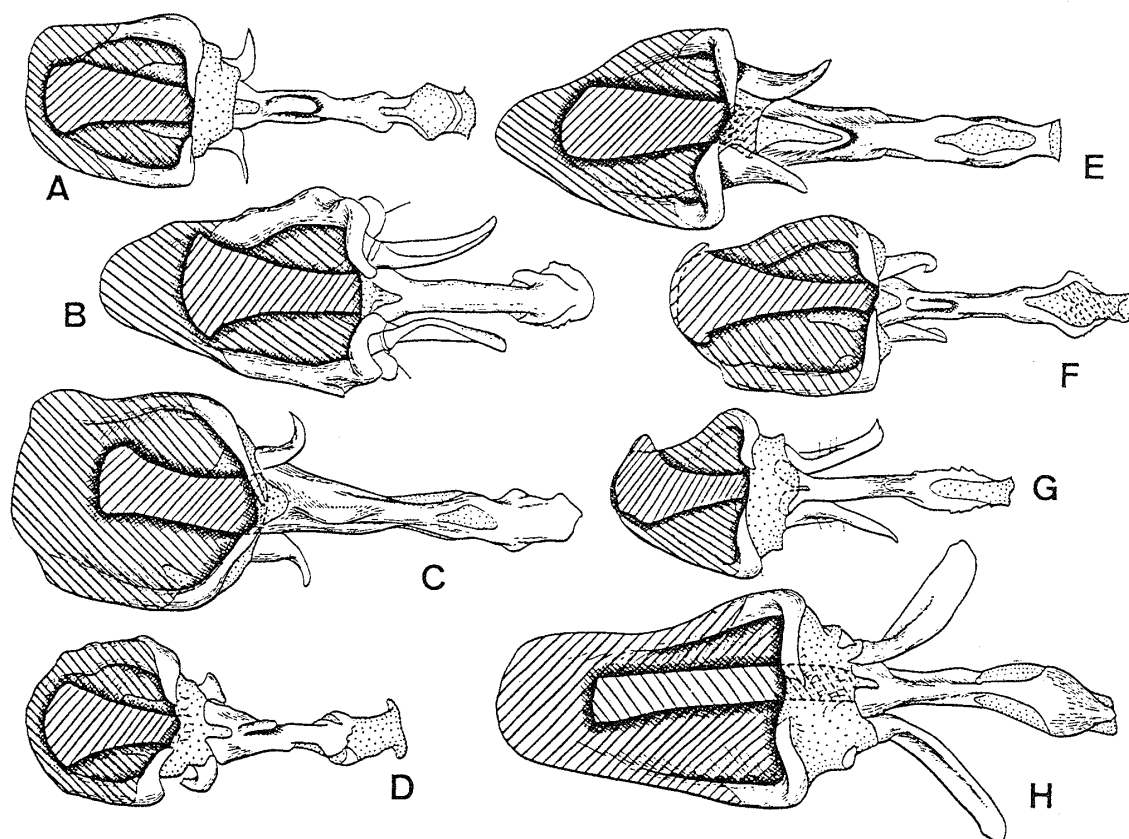


Fig. 5. Hypandrium, pre- and postgonites and aedeagus in dorsal view. — A, *Aphria longilingua* (RONDANI); B, *Atylostoma similimum* (TOWNSEND); C, *Clausicella* sp. from Laos; D, *Demoticoides pallidus* MESNIL; E, *Istoglossa* sp. from Laos; F, *Demoticus plebejus* (FALLÉN); G, *Thelairoleskia* sp. from Celebes; H, *Ocypteromima polita* TOWNSEND.

the genus is apparently close to *Doleschalla* WALKER because of the resemblance in their head facies and thoracic chaetotaxy. He placed the subtribe between the subtribes *Doleschallina* and *Phyllomyia*. CROSSKEY (1976) treated *Oxyphyllomyia* as a tribe and considered it to be close to the tribe *Leskiini* because of the head facies and structure of the proboscis.

In general facies *Oxyphyllomyia* resembles *Phyllomya* and *Doleschalla* as well as some members of the *Leskiini* (sensu CROSSKEY, l.c.), and it seems difficult to establish the true affinities of this genus. In the structure of the male genitalia, however, *Phyllomya* and *Doleschalla* are certainly different from most members of the *Leskiini*, and the genital structures seem to provide a clue for inferring the phylogenetic position of *Oxyphyllomyia*.

The structure of the male genitalia of *Phyllomya* and *Doleschalla* apparently belongs to type II in the connection between basiphallus and distiphallus, *Dexia* subtype in the distiphallus structure and C type in the "posterior" (=anterior) parameres (VERBEKE, 1962, 1963), i.e., basiphallus and distiphallus strongly angulated, distiphallus very slender, with strong spinules on ventral portion, and pre-

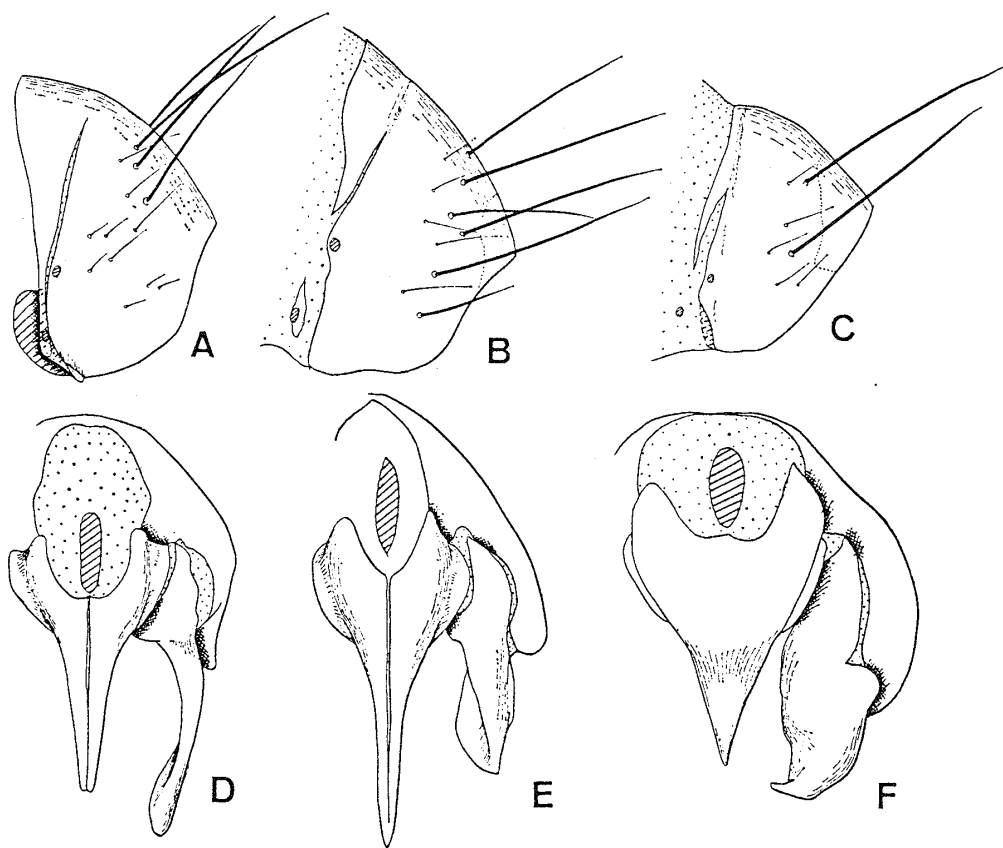


Fig. 6. Male 6th abdominal tergum and synsternum 7+8 in lateral view (A-C) and epan-drium, cerci and surstylus in dorsal view (D-F). Hairs omitted in D-F. — A, D, *Bithia spreta* (MEIGEN); B, E, *Leskia miranda* MESNIL; C, F, *Solieria aureola* MESNIL.

gonites flat, not developed as a pair of lobes (Fig. 3 A, B). On the contrary, in *Oxyphyllomyia* the connection between basiphallus and distiphallus is non-mobile (type I), distiphallus is not elongate but short and broad (the *Echinomyia* subtype) and the pregonites are well developed as a pair of lobes bearing hairs (A type) (Fig. 1 D, E). It is clear that *Oxyphyllomyia* is unrelated to *Phyllomya* and *Doleschalla* judging from the above-mentioned characters.

Among the Oriental genera of the Leskiini sensu CROSSKEY (l.c.), *Dexiomimops* TOWNSEND and *Feriola* MESNIL have similar male genitalia to those of *Phyllomya* and *Doleschalla* (Fig. 3 C, D), so that these genera should also be excluded from the Leskiini as MESNIL (1975) proposed. Similarly, *Trichoformosomyia* BARANOV also seems to differ from other members of the Leskiini in the male and female genitalia: male 6th abdominal tergum divided into 2 hemitergites; pregonite narrow tube-like; female 6th and 7th abdominal terga strongly reduced to hemitergites; female 7th abdominal sternum produced downwards at apex (Fig. 3 E-G). It is possible that this genus is improperly placed in the Leskiini.

The rest of the Oriental genera of the Leskiini (sensu CROSSKEY) are here defined to compose the tribe Leskiini s. str., i.e., *Aphria* ROBINEAU-DESVOIDY, *Atylostoma* BRAUER et BERGENSTAMM, *Clausicella* RONDANI, *Demoticoides* MESNIL, *Istoglossa*

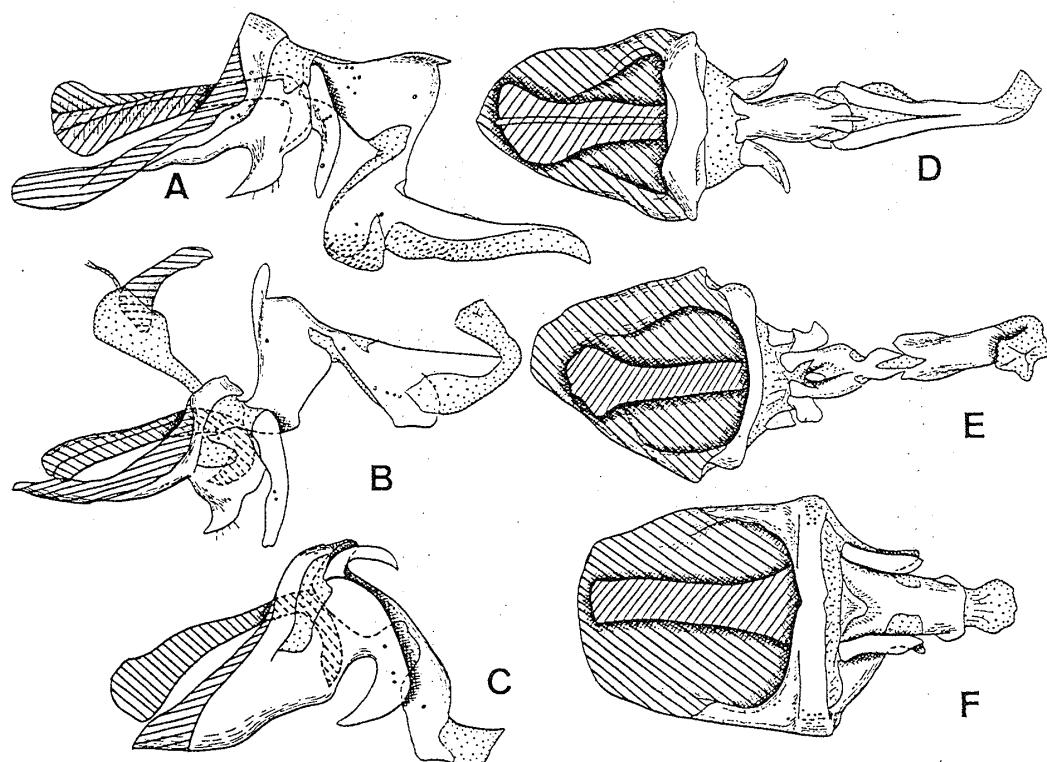


Fig. 7. Hypandrium, pre- and postgonites and aedeagus in lateral view (A-C) and dorsal view (D-F). — A, D, *Bithia spreta* (MEIGEN); B, E, *Leskia miranda* MESNIL; C, F, *Solieria aureola* MESNIL.

RONDANI, *Leskia* ROBINEAU-DESVOIDY, *Ocypteromima* TOWNSEND, *Solieria* ROBINEAU-DESVOIDY and *Thelairoleskia* TOWNSEND (*Leskiola* MESNIL and *Myobiomima* TOWNSEND not seen). They share the following genital characters: — ♂: 6th abdominal tergum entire, free from synsternum 7+8 or fused with it on mid-dorsal portion; cerci closely associated with each other, sometimes completely fused, without basal prolongation; surstylus not fused with epandrium, without apical teeth; pregonite well developed, usually with several hairs on posterior portion; postgonite developed; distiphallus connected to basiphallus with narrow and long dorsal sclerite (Figs. 4–7). ♀: 6th abdominal tergum always broad and long; 7th tergum sometimes reduced or absent; 6th and 7th abdominal sterna long and broad; 8th abdominal sternum always present; sterna not produced downwards apically; cercus rather short and broad (Figs. 8–9).

Two Palearctic genera, *Bithia* ROBINEAU-DESVOIDY and *Demoticus* MACQUART,

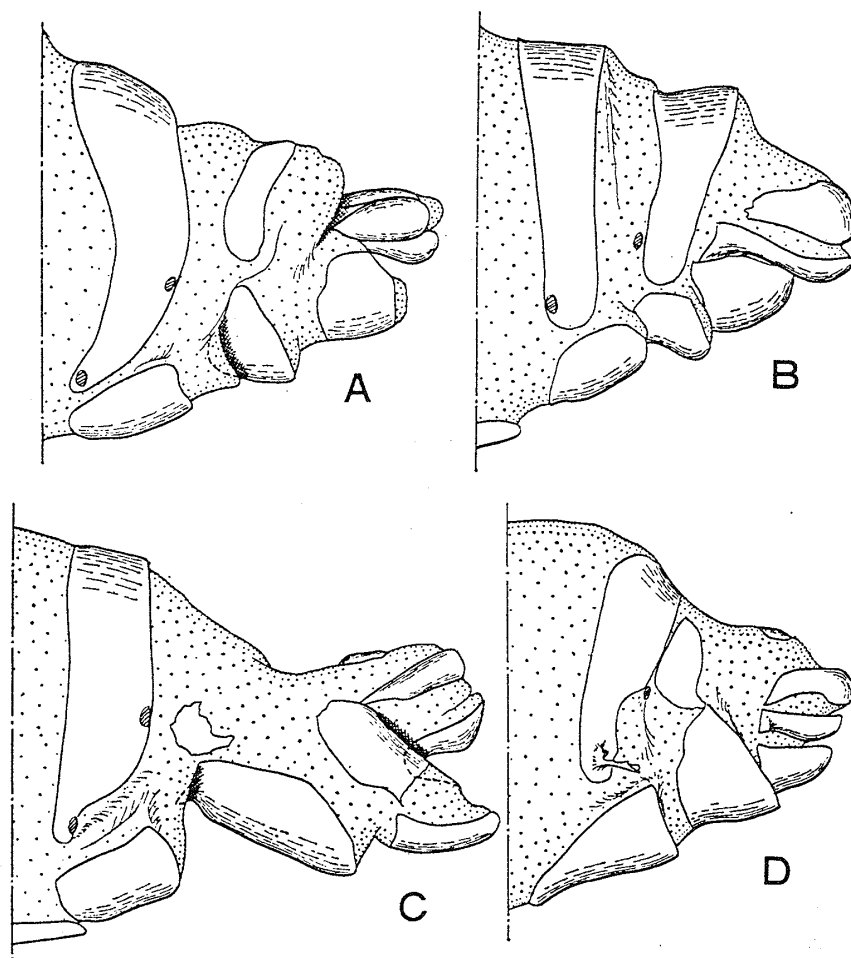


Fig. 8. Female genitalia in lateral view (hairs omitted). — A, *Leskia miranda* MESNIL; B, *Solieria aureola* MESNIL; C, *Atylostoma similimum* (TOWNSEND); D, *Ocypteromima polita* TOWNSEND.

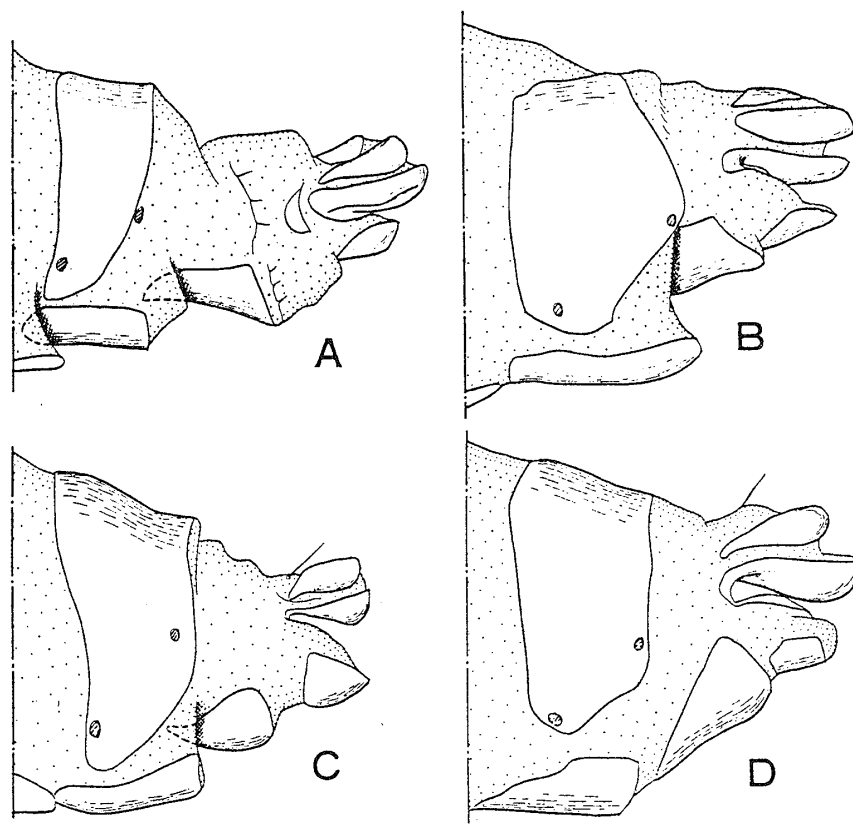


Fig. 9. Female genitalia in lateral view (hairs omitted). — A, *Demoticoides pallidus* MESNIL; B, *Aphria longilingua* (RONDANI); C, *Clausicella* sp. from Taiwan; D, *Istoglossa* sp. from Laos.

also belong to this tribe (Figs. 4 E, 5 F, 6 A, D, 7 A, D). The tribe here defined almost conforms to the assemblage of the Leskiina and Clausicellina of MESNIL (1973) (*Fischeria* ROBINEAU-DESVOIDY, *Naira* RICHTER, *Prodemoticus* VILLENEUVE and *Rhinomyiobia* MACQUART not seen).

Among the members of the Leskiini, *Bithia*, *Leskia* and *Solieria* seem to comprise a monophyletic group in having the following derived characters (the *Leskia* group): male 6th abdominal tergum fused with synsternum 7+8 on mid-dorsal portion; dorsal arms of hypandrium fused with each other and encircling base of aedeagus (Figs. 6 A–C, 7 D–F). As described in the preceding section, the same characters are also shared by *Oxyphyllomyia* (Fig. 1 C, E). This genus is properly assigned to the Leskiini and included in the *Leskia* group judging from these characters. In other genera of the Leskiini these characters seem to retain primitive states, i.e., male 6th abdominal tergum free from synsternum 7+8, and dorsal arms of hypandrium separated from each other (Figs. 4, 5). Conversely, the *Leskia* group seems to be primitive in the female genitalia compared with the other genera, in that the 6th and 7th abdominal tergum are broad and long (Figs. 2, 8 A, B).

In *Oxyphyllomyia* the male cerci are completely fused, the aedeagus is rather short and cylindrical, the female 7th abdominal spiracle is situated near the 7th tergum and the female epiproct is absent (Figs. 1 A, D, E, 2). The same character states are also found in *Solieria* (Figs. 6 F, 7 C, F, 8 B). *Oxyphyllomyia* and *Solieria* may be united in a monophyletic group in sharing two derived characters, fused male cerci and absence of female epiproct. In *Leskia* and *Bithia* these characters are all in reverse states: male cerci at least narrowly separated from each other; aedeagus slender and long; female 7th abdominal spiracle situated in 6th tergum; female epiproct present (Figs. 6 D, E, 7 A, B, D, E, 8 A). *Leskia* and *Bithia* may be united in a monophyletic group sharing a sister-group relationship with *Oxyphyllomyia*+*Solieria* in having two derived characters, i.e., elongate distiphallus and replaced female 7th abdominal spiracle.

Consequently, it is inferred that *Oxyphyllomyia* is most closely allied to *Solieria* in sharing two derived characters as mentioned above. It is much more specialized than *Solieria* in external characters, such as the elongate proboscis, reduced post-scutellum, lower calypter and thoracic chaetotaxy and peculiar wing venation. In the tribe Leskiini, these two genera, along with *Bithia*+*Leskia*, may be united in a monophyletic group sharing such derived characters as fused male 6th abdominal tergum and fused dorsal arms of the hypandrium.

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